

DESCRIPTION



BALTEK® SBC is a core material produced from controlled kiln-dried balsa wood in the 'end-grain' configuration with physical time to kiln control.

3A Composites Core Materials owns and manages several thousand hectares of FSC®-certified balsa wood plantations. Its cultivation from seedling to the tree ensures sustainable forest management and strict traceability. Documented and controlled time to kiln-drying makes SBC ideal for vacuum infusion. Own plantations enable 3A Composites to provide a continuous supply to industrial customers.

BALTEK® SBC has exceptionally high strength and stiffness to weight ratios and achieves an excellent bond with all types of resins. It is an ideal core material for an extensive range of applications. All while being a renewable resource.

CHARACTERISTICS

- Ecological product from controlled 3A Composites Core Materials plantations
- Controlled time from harvesting to kiln-drying: Optimized for vacuum infusion processes
- Full traceability and highest lumber quality due to strict process control from seedling to final product
- Broadest range of available balsa densities worldwide
- Certified for a range of applications by DNV, Germanischer Lloyd and Korean Register
- Outstanding strength and stiffness to weight ratios
- Excellent fatigue and impact resistance
- Fulfills most FST (flame, smoke, toxicity) requirements
- Extremely wide operating temperature range -212 °C to +163 °C (-414 °F to +325 °F)

APPLICATIONS

- **Wind energy:** Rotor blades (shear webs & shells), nacelles, spinners
- **Marine:** Hulls, decks, bulkheads, superstructures, interiors, tooling/molds
- **Road and Rail:** Floors, roofs, side skirts, front-ends, doors, interiors, covers
- **Industrial:** Tanks, containers, architectural panels, impact limiters, sporting goods
- **Aerospace:** Floors, cargo pallets, cargo containers, bulkheads, general aviation
- **Defense:** Naval vessels, containers, cargo pallets, shelters, ballistic panels

PROCESSING

- Vacuum infusion
- Adhesive bonding
- Compression molding
- Contact molding (hand/spray)
- Pre-preg processing (up to 180 °C, 355 °F)
- Resin injection (RTM)



MECHANICAL PROPERTIES					
Typical properties for BALTEK® SBC		Unit (metric)	SBC.50	SBC.80	SBC.100
Nominal sheet density	ASTM C-271	kg/m ³	109	132	148
Minimum sheet density	ASTM C-271	kg/m ³	84	113	136
Compressive strength perpendicular to the plane	ISO 844	N/mm ²	5.5	7.7	9.2
Compressive modulus perpendicular to the plane	ISO 844	N/mm ²	1616	2187	2526
Tensile strength perpendicular to the plane (polyester)	ASTM C-297	N/mm ²	3.9	5.0	5.7
Tensile strength perpendicular to the plane (epoxy)	ASTM C-297	N/mm ²	9	10.9	12
Tensile modulus perpendicular to the plane	ASTM C-297	N/mm ²	1682	2337	2791
Shear strength ¹	ASTM C-273	N/mm ²	1.8	2.3	2.6
Shear modulus	ASTM C-273	N/mm ²	136	166	187
Thermal conductivity at room temperature	ASTM C-177	W/m*K	0.048	0.059	0.066
Standard sheet	Width	mm ± 5	610	610	610
	Length	mm ± 10	1220	1220	1220
	Thickness	mm +0.25 / -0.75	4.7 to 76	4.7 to 76	4.7 to 76
ContourKore (CK)	Thickness	mm +0.25 / -0.75	4.7 to 50	4.7 to 50	4.7 to 50

Please specify Lamprep surface treatment or AL600 coating (decreases porosity and increases bond strength) when ordering.

Perforations (breather holes), grooves and other finishing options are also available. Other sheet sizes are available on request.

¹⁾ All samples tested @ ¾" thick. Please apply appropriate shear strength reduction factors for greater thickness.

Fire Performance ⁺	Standard		SBC.50	SBC.100
Aircraft	FAR 25.853	Flammability Smoke density Toxicity Heat release	Passed Passed Passed Failed	Passed Passed Passed Failed
Rail	ASTM E 162	Flame spread factor Heat Evolution factor Flame spread index	2.22 6.24 14	2.22 6.24 14
Rail	ASTM E 662 (non-flaming mode)	Ds @ 90 sec Ds @ 4min	3 39	3 39
Rail	ASTM E 662 (flaming mode)	Ds @ 90 sec Ds @ 4min	8 25	8 25

⁺ All samples tested with phenolic resin FRP skins.

The data provided gives approximate values for the nominal density. Due to density variations these values can be lower than indicated above. Minimum values to calculate sandwich constructions can be provided upon request. The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.

GM--TDS-104

MECHANICAL PROPERTIES					
Typical properties for BALTEK® SBC		Unit (imperial)	SBC.50	SBC.80	SBC.100
Nominal sheet density	ASTM C-271	lb/ft³	6.8	8.2	9.3
Minimum sheet density	ASTM C-271	lb/ft³	5.2	7.1	8.5
Compressive strength perpendicular to the plane	ISO 844	psi	798	1117	1336
Compressive modulus perpendicular to the plane	ISO 844	psi	234400	317198	366200
Tensile strength perpendicular to the plane (polyester)	ASTM C-297	psi	558	725	831
Tensile strength perpendicular to the plane (epoxy)	ASTM C-297	psi	1299	1581	1737
Tensile modulus perpendicular to the plane	ASTM C-297	psi	243900	338954	404700
Shear strength ¹	ASTM C-273	psi	267	334	378
Shear modulus	ASTM C-273	psi	19700	24076	27100
Thermal conductivity at room temperature	ASTM C-177	BTU.in/ft².hr.°F	0.331	0.407	0.456
Standard sheet	Width	in ± 3/16	24	24	24
	Length	in ± 3/8	48	48	48
	Thickness	in +0.01 / -0.03	3/16 to 3	3/16 to 3	3/16 to 3
ContourKore (CK)	Thickness	in +0.01 / -0.03	3/16 to 2	3/16 to 2	3/16 to 2

Please specify Lamprep surface treatment or AL600 coating (decreases porosity and increases bond strength) when ordering.

Perforations (breather holes), grooves and other finishing options are also available. Other sheet sizes are available on request.

¹⁾ All samples tested @ 3/4" thick. Please apply appropriate shear strength reduction factors for greater thickness.

Fire Performance ⁺	Standard		SBC.50	SBC.100
Aircraft	FAR 25.853	Flammability	Passed	Passed
		Smoke density	Passed	Passed
		Toxicity	Passed	Passed
		Heat release	Failed	Failed
Rail	ASTM E 162	Flame spread factor	2.22	2.22
		Heat Evolution factor	6.24	6.24
		Flame spread index	14	14
Rail	ASTM E 662 (non-flaming mode)	Ds @ 90 sec	3	3
		Ds @ 4min	39	39
Rail	ASTM E 662 (flaming mode)	Ds @ 90 sec	8	8
		Ds @ 4min	25	25

⁺ All samples tested with phenolic resin FRP skins.

The data provided gives approximate values for the nominal density. Due to density variations these values can be lower than indicated above. Minimum values to calculate sandwich constructions can be provided upon request. The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.

GM--TDS-104